# NEW PRODUCTS

New Products Editor:
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## System 4200 family supports Pick operating system

Pertec Computer Corporation has announced a 4200 family of business computer systems based on a 10-MHz, MC68000 system and supporting Pick operating system software. A desktop or floor-cabinet system is available with one to 35 terminals designed for use by savings and loan, retail, manufacturing and distribution organizations, and government agencies. The Pick operating system supports applications from general accounting and word processing to sales and production analysis.

The desktop 4220 occupies approximately as much space as an electric typewriter and is a multitasking, multiuser system that can support from three to 11 terminals/printers linked to the host via RS-232-C serial port interfaces. The basic hardware configuration includes 256K bytes of RAM, three RS-232 ports, one 5¼-in. Winchester disk, a ¼-in. cartridge tape drive, and a seven-slot chassis for expansion options. Memory can be expanded to 1.5M bytes.

The 4240 system supports from 11 to 35 terminals/printers linked to the host via standard RS-232-C serial port interfaces. The basic hardware configuration includes 256K bytes of RAM, 11 RS-232 ports, one or two eight-in. Winchester disks, and a ¼-in. cartridge tape drive. The 15-slot chassis provides room for expansion options and is housed in a desk-height cabinet. Memory may be expanded to 2M bytes, and two optional floor-cabinet mass storage subsystems can be added, for a total storage capacity of over 400M bytes.

The virtual-memory-based, multiuser Pick operating system supports a variety of relational database management capabilities, including an English-like query language, an extended version of Dartmouth Basic, a text editor and word processor, file sizes limited only by disk capacity, record sizes up to 32K bytes, and a procedure processor tool that can be used in developing and prestoring complex operations and recalled by simple command.

Prices for the System 4200 line begin at $13,000, including the Pick operating system.

**Reader Service Number 31**

## Self-contained modem combines communications functions

Zoom Telephonics is introducing a modem for Apple computers that combines the functions of a conventional modem, the Apple communications card, and certain communications software. The unit is also furnished with software that permits the screen image to be captured in the Apple's RAM.

Summa 300 is a single-slot, 300-baud direct-connect modem designed for Apple II and IIe computers. It is self-contained, combining modem and Apple communications circuitry on one single-slot card, and provides telephone connection to computer databases without requiring additional peripherals or software. The unit plugs into any Apple I/O expansion slot and uses the computer's power; no separate external power source is needed.

Summa 300 is compatible with any communications software using a standard communications interface and is FCC approved for direct connection to any modular phone jack. It can operate at 300 or 110 baud. A "carrier detect" LED notifies the user when contact with the other party has been made.

The price for Summa 300 is $119.

**Reader Service Number 32**

## All-purpose terminal fits into briefcase

RCA Microcomputer Products has designed all-purpose terminals for multi-database timesharing and dedicated, direct computer-connected applications. The terminal features firmware control and the ability to provide custom keyboards, as well as user-friendly features such as menu-controlled operation.

Other features include a programmable "personality" to match specific communication requirements for each database; a built-in, direct-connect, originate/answer/auto-answer 300-baud modem; tone or pulse autodialing of up to 26 stored phone numbers; and automatic logon.

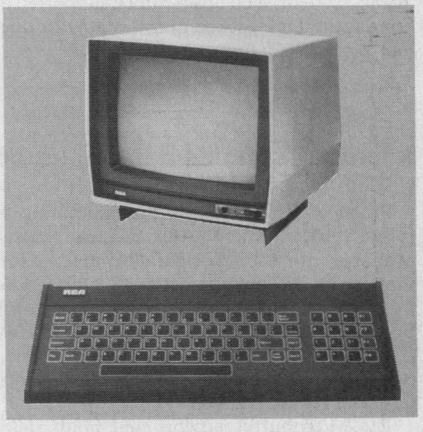
A single keypress can dial a stored number, send the logon sequence to the host computer, and return terminal control to the user. Password protection prevents unauthorized access to designated numbers. The APT terminals can also be used as autodialers for voice communications.

The APT terminals are offered with or without a 12-inch, diagonal, nonglare, green-phosphor display monitor and with a choice of two keyboards: a full-stroke keyboard or a flexible membrane keyboard.

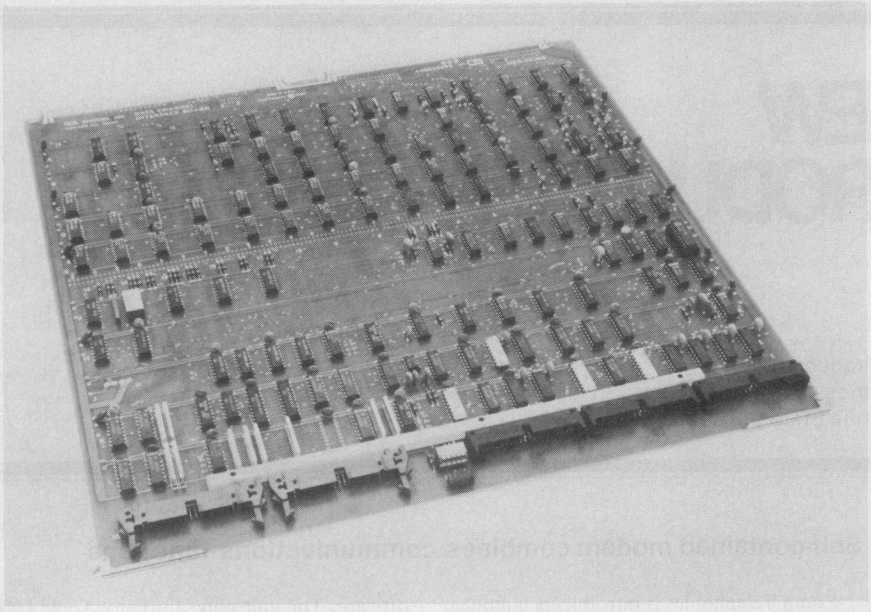
A terminal without monitor measures approximately 17×7×2 inches and weighs less than four pounds. It will fit easily into a briefcase, includes memory backup, and can be used with any standard TV set or monitor.

APT models without displays are $399 and with monitors are $598. Accessories include the 12-inch display monitor alone at $229; a printer interconnect cable at $32; and an acoustical coupler at $59.

**Reader Service Number 33**



**RCA's APT VP3801 TD membrane keyboard terminal (shown here with monitor) is portable without reprogramming through a 48-hour, batteryless power backup. Power is supplied to the APT by a calculator-type plug-in power pack. The 80- or 40-character, 24-line video output can be displayed on a standard monitor.**



**MDB Systems' MDB-DCHIB and MDB-DCHIB-LLO high-speed data channel (DMA) boards are interface and function compatible with DEC and MDB processors. An edge-mounted, switch-selectable DMA throttle timer gives data transfer rates of 250K, 111K, 30K, 17K, and 12K words and adds selected delays for maximum (250K-word) transfer rates. The MDB-CHIB with drivers and receivers costs $2670 in single quantities. Delivery is 30 days ARO.**

**Reader Service Number 34**

## Ink jet printer introduced for personal computer applications

Diablo systems has introduced US and European models of a plain-paper, color ink jet printer. The Series C printer uses drop-on-demand color ink jet printing to address the image processing and color graphics requirements of personal computers, professional workstations, and business systems.

The printer generates integrated text and graphics by using special symbols and mosaics, or complementary image (bit-mapped) color printing. It also offers the capability of primary or halftoned color background. The four- and five-pass, 20-cps ink jet printer featuring switch-selectable, uni- and bidirectional printing capabilities integrates both text and graphics on cut-sheet or roll paper in seven colors. When printing text, the ink jet printers use a four-pass mode that generates 12 horizontal dots by 16 vertical dots to create each character. For graphic color applications, the printer is capable of placing 120 dots per inch and up to $1024 \times 1024$ dots per page within approximately four minutes, according to the company.

Both the US and European ink jet models carry a targeted end-user, quantity-one price of $1250.

**Reader Service Number 37**

## Modem reduces telephone line requirements

Micom's Micro4000 Model 4096/4+ multiport modem combines a time-division multiplexer with a small 9600-bps modem in one package to support up to four synchronous terminals or channels on one unconditioned telephone line.

The Model 4096/4+ can support four 2400-bps synchronous terminals and communicate with a remote computer over one leased phone line that carries data at 9600 bps. Up to four input channels—operating at 2400, 4800, 7200, or 9600 bps—can be supported as long as the aggregate composite data rate does not exceed 9600 bps.

The modem complies with CCITT recommendation V.29 and offers downline loading of channel and composite link parameters (such as operating speed), front-panel indicators that display the status of any selected channel, independent local and remote loopback tests for any selected channel or the composite link, and individual channel buffering and control signal passing for linking other communications equipment to the modem.

The Micro4000 Model 4096/4+ modem is priced at $3695.

**Reader Service Number 35**

## Microbuffer holds data, frees computer time

Practical Peripherals is manufacturing a printer buffer, Microbuffer In-Line, that is available with a serial or parallel interface for most types of communications systems. Expandable to 256K, the unit provides memory buffer for a variety of output devices, including serial or parallel printers, modems, typesetting equipment, word processors, plotters, and remote data entry.

The Microbuffer accepts and holds data coming from the computer at high speed and transmits it to the output device at the correct speed, leaving the computer free for additional processing. Nine different baud rates from 75 to 19,200 can be specified when using the serial system.

A copy feature allows printing of up to 255 copies without tying up the computer. A touch-sensitive button on the Microbuffer's front panel lets the user specify the number of copies required. This process can be halted at any time and continued as if no interruption has occurred. New data can be sent to the Microbuffer any time during the copy process.

A pass button, included with the serial interface model, allows input data to pass around the Microbuffer for logon or for setting up special output device parameters.

A 32K-Microbuffer In-Line system, compatible with most computers with serial RS-232C output devices, retails for $299; with 64K-memory it costs $349. Additional memory expansion is available for $179 per 64K.

**Reader Service Number 36**

## TRS-80 micro color computer offered to first-time buyers

Radio Shack's TRS-80 micro color computer, Model MC-10, is aimed primarily at first-time computer buyers.

The machine features a standard keyboard with moving keys. Keyword input or generation of low-resolution graphics requires only two keystrokes.

The MC-10 provides eight colors and displays text and graphics in a format of 32 characters on 16 lines. Most standard color basic programs that work on a 4K TRS-80 color computer can be keyed in and run on the MC-10 with minor modifications.

According to Radio Shack, software written specifically for the MC-10 will be available soon, and its 4K-byte capacity will be expandable to 20K by means of a user-installable, plug-in module.

The MC-10 has a serial port to allow use of modems and printers and a cassette port for loading and saving programs on cassette tape. A built-in RF modulator permits attachment to any standard color or black-and-white television, although color television is recommended. The computer comes with all hardware necessary for attachment. Only a television and a standard 110-volt AC outlet is needed for it to become operational.

The MC-10, which weighs 29½ ounces and measures $2 \times 8 \times 7$ inches, is available for $119.95. An operator's manual with instructions in Microsoft color Basic is included.

**Reader Service Number 38**

## Pipeline links mainframe databases with PCs

Intel Corp. has introduced Data Pipeline hardware and software designed to link powerful mainframe computer databases with personal computers. Data Pipeline is built around Intel's iDIS 86/735 Data-base information system, a microcomputer-based "traffic manager" that interprets, stores, and distributes mainframe data to and from terminals and PCs.

The iDIS 86/735, is a key component of the Data Pipeline, serving as the data gateway between the mainframe database and PCs or terminals through RS-232 links. The system is based on the 16-bit 8086 microprocessor and runs under Microsoft's Xenix operating system. It offers the C language plus a System 2000 data extract facility, communications, local system query language, local area networking, and an integrated applications software package. The system's Seamless Software includes Microsoft's Multiplan spreadsheet, word processing, menu and forms development tools, electronic mail, and calendar.

The System 2000 DBMS serves as the mainframe component to support Data Pipeline. An entry system model provides basic support in a mainframe-to-iDIS 86/735 link. An end-user system model handles information analysis and on-line query and update activities. A development system model offers database management tools to support mainframe applications and the Data Pipeline and includes application development support.

Intel's iDIS 86/735 sells for $34,995, including an 8086-based iSBC 86/30 central processor, floppy and Winchester disk drives, Xenix operating system, C, data extract facilities, SQL, communications, and Intel's Seamless software. The System 2000 DBMS is priced from $40,000 for an entry system model to $165,000 for a development system.

**iDis 86/735 Reader Service Number 39**
**System 2000 Reader Service Number 40**

## Expansion module has 206-word vocabulary

General Digital Corporation has added a speech synthesizer expansion module to its line of GDX modules compatible with Intel SBC and National Semiconductor BLC board expansion sockets. The module permits the generation of speech from on-board ROM vocabularies or unlimited vocabulary capability via CPU-provided data.

The GDX-Speech-TI uses the TI-5220 chip and employs LPC 10 techniques. Included in the module is a standard industrial vocabulary of 206 words, with additional vocabulary ROMs available. The module provides a natural-sounding voice, the company says, and includes an on-board LPF, a 2W audio amplifier, and volume control capability.

The GDX speech synthesizer expansion module costs $285 in single quantities.

**Reader Service Number 41**

## High-resolution CAD/CAM terminal added to desktop line

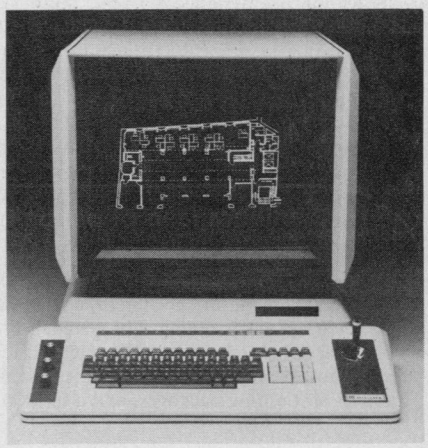
Megatek Corporation has introduced a monochrome, desktop engineering terminal as the second in its 1600 series of multifunction terminals. The 1645 terminal offers a menu-selected pixel resolution of 1024 × 960 or 1280 × 960. It is compatible with 1600 color terminals and the larger 6000 and 7000 systems from Megatek.

The 1600 combines 2-D interactive graphics with an alphanumeric capability. Digital VT-100/52 compatibility allows users to perform graphic design functions, software development, documentation, and report generation. According to the company, Tektronix 4014 emulation will soon be available as an option.

The 1645 terminal uses an eight-MHz 8086 microprocessor as the graphics processor and employs display-list processing techniques. An 8085 microprocessor is used as a keyboard/peripheral processor.

The display-list architecture allows an engineer or designer to execute such functions as real zoom or scale, translate, clip, rotate, pick, or polygon fill on the screen without extensive host interaction.

The 1645 can tilt and swivel. The keyboard with palm rest and sculpted keys includes a standard VT-100 alpha keypad, a 10-key data entry keypad, 16 programmable function keys for directly calling high-level graphics functions, and optional joystick and valuator dials.



**The high-resolution raster display of Megatek Corporation's new monochrome 1645 desktop engineering terminal is designed to meet the graphics requirements found in CAD/CAM, finite element modeling, schematic data entry, architectural design, and other engineering applications.**

The 1645 terminal is priced at $13,900 with discounts available for volume purchasers. Deliveries are 120 days ARO.

**Reader Service Number 42**

## Z80A single-board computer has STD-bus compatibility

Micro-Link Corporation has introduced a Z80A single-board computer with STD-bus compatibility. The STD-147 is designed to eliminate the need for separate memory, I/O, and time functions.

The on-board 64K dynamic RAM can be reconditioned for use with off-card memory-mapped boards. A 28-pin, byte-wide socket permits up to 16K EPROM for use with on-board monitors or the use of boot PROMs in the phantom configuration.

A console, a modem, or general-purpose I/O is handled through an on-board serial port, which is complete with programmable baud rate generators. Four programmable timers are also provided, two of which are normally used for baud rate control of the serial port. A time-of-day feature provides a 0.1-sec. resolution of minutes, hours, day, and month. Leap year adjustment is automatic. The computer's eight programmable lines can be used to monitor modem control lines and control ROM or RAM disable and tri-state command.

Single-unit price for the STD-147 with 64K dynamic RAM is $395.

**Reader Service Number 43**

## Disk controller employs "burst mode" DMA interface

Compupro's intelligent 5¼-inch Winchester disk controller uses "burst mode" DMA technology to access a full 16M-byte address space. According to Compupro, the high-speed DMA approach minimizes host processor overhead associated with disk operations, while providing a table-oriented command structure for implementation with a variety of processors.

The Disk 3 controller, compatible with the IEEE 696/S-100 bus standard, incorporates a local processor that enables Compupro System 816 users to request transfers of large data blocks between disk and memory with a single command that specifies source, destination, and length. The channel selector can then perform all required seeking, reading, and writing, without external intervention.

The controller interfaces to as many as four ST-506 series-compatible drives or four Shugart SA1100 series drives, any of which may have different capacities, formats, and seeking characteristics. Full compatibility is offered for all Compupro MP/M 8-16-based multiuser, multitasking systems, with support for multiple DMA devices conforming to the IEEE 696/S-100 bus standard.

Available for volume shipments, Disk 3 is listed at $795. A certified-system-component version is available for $895, with OEM discounts provided.

**Reader Service Number 44**

## Multiuser computer has remote customer support via telephone

Solvation has designed a 16-bit, multiuser computer system to satisfy the needs of small businesses. The series 7000 includes unique electronics for diagnostics and remote customer support by telephone, up to 1M of main memory, a 20M-byte Winchester disk, and a tape cartridge system for backup and archiving. The series 7000 is designed to be extremely tolerant of wide swings in voltage, noisy power lines, and rooms without air conditioning.

The 7000's operating system is a transaction-oriented, menu-driven system supporting cache memory and spooling. The system hosts word processing, the Virtual Planner spreadsheet, database management, graphics, small business accounting packages, and a series of vertical market segment packages for public accounting firms, advertising agencies, florists, merchants, and soon, construction and manufacturing firms.

The system's keyboard input is buffered so that no keyed characters are lost. A user-friendly menu system guides the user through the correct procedures and provides error messages. The tape storage system, integrated into the operating system and application software, is designed for first-time computer users who have neither the time nor the inclination to learn the general backup and archiving techniques for multiuser systems.

The three-workstation series sells for $18,900.

**Reader Service Number 45**

## Microcomputer design stresses upgrading capabilities

QDP Computer Systems manufactures an eight-bit, S-100-bus microcomputer designed to be expandable and upgradable as growth and new technical developments occur. Compatible with various terminals, printers, plotters, modems, and other peripheral equipment, the QDP-100 can be adapted to control machinery and monitor data gathering tasks. A typical system has two serial and two parallel ports, and a six-slot mother board with three slots available for expansion. It can accommodate IEEE 696/S-100 single-and double-height circuit boards.

The standard internal memory for the single-user QDP-100 is 128K bytes; 256K bytes are standard in all multiuser systems. Two double-sided, double-density floppy disk drives provide 2.4M bytes of internal disk storage. The addition of a hard-disk unit can increase the QDP-100 storage capabilities to 30M bytes. The added units can be used to convert a single-user QDP-100 to a multiuser system.

The QDP-100 microcomputer is priced from $4695 to $7495, depending on added features.

**Reader Service Number 46**

## Processor supports IBM SNA remote printing/plotting

Versatec has introduced the Graphics Network Processor-SNA Model 451. The processor, operating as a remote job entry station, sends and receives EBCDIC or binary data in IBM system network architecture networks using synchronous data link control protocol. Printer/plotter uses Versatec byte-parallel format for operation at high data transfer rates. Data integrity is ensured through 16-bit CRC-CCIT error detection and recovery. According to the company, the processor performs any required translation of host computer data.

**5-37 pin conversion parallel interface cable links the Versatec Graphics Network Processor with Versatec TTL and long-line parallel interfaces. The processor can be connected directly to any Versatec printer/plotter by this cable, or be linked via an active interface.**

While logically emulating a configurable set of IBM I/O devices, the processor provides flexibility in the configuration of local physical devices and data pathways to logical IBM devices. It offers operator console support, duplicate character compression, and SNA-standard interleaved communications that allow simultaneous operation of multiple logical devices.

IBM SDLC protocol is used to communicate with the host via synchronous modems or in direct connection to an IBM 3705/6 communications controller. The processor and attached devices emulate IBM 3776 models 3 or 4, or an IBM 3777 model 3 RJE workstation.

Peripheral communications with Versatec devices are accomplished in binary and EBCDIC using Versatec byte-parallel formats at speeds to 350K bps.

The processor console provides control functions, host command input and response (SNA logon and routing), and application signon, inquiry, cancel, and queue control.

The graphics network processor is priced at $8500 and is available in 45 days ARO.

**Reader Service Number 47**

## CP/M-based software helps beginning users

Computing has introduced a software package designed to help beginning users run the CP/M operating system. It's a menu-driven utility disk called Menu/power that can be loaded into most CPM machines (IBM PC versions are available). According to the company, it turns complciated CP/M commands into plain English commands.

Menu/power numbers all the disk files. The user picks the file number, and CP/M is fed the file names. Glitched files and major portions of destroyed data or text files can be recovered automatically. Erase, space, test, recover, copy, sort, rename, run, compare, type, size, protect, and unprotect are some of the more than 20 commands on the menu.

Menu/power retails at $149. Qualified dealer and OEM inquiries are welcome.

**Reader Service Number 48**

## Intelligent graphics terminal is Tektronix and DEC compatible

The J-1014 is a monochromatic, microprocessor-based terminal intended for graphics applications in mechanical design, electrical schematics, architectural and engineering drawing, and mapmaking. The 14-in. unit from Kanematsu Electronics, features 1024 × 780 resolution and draws at a rate of 880 ns/dot. This speed rate allows "wireframe" presentations to be displayed at 19,200 bps.

The terminal is compatible with Tektronix 4010 and 4014 commands and with the DEC VT-100 terminal.

An internal microprocessor allows the J-1014 to perform the circle, scroll, multiple line style, and selective erase functions.

The J-1014 intelligent graphics terminal is priced at $3995; delivery is 60 days ARO. A color version of the terminal is available as an option.

**Reader Service Number 49**

## CAD option offered for IBM PC

GTCO Corporation is offering Vector Sketch, a CAD software package for the IBM personal computer to be used in conjunction with a Digi-Pad 5 digitizer.

Vector Sketch enables the operator to input drawings via a digitizer. Vectors are displayed on the graphics monitor and can be stored on disks, plotted in sizes up to 24 × 36-in., or printed on a dot matrix printer.

The minimum configuration for use of Vector Sketch is a GTCO digitizer; IBM PC with dual disk drives, graphics monitor and card; 256K RAM; and an asynchronous adapter. The software supports Hewlett-Packard 7000 series plotters and Epson dot matrix printers for hard copy of the files.

Vector Sketch is priced at $2995, which includes a 0.001-in.-resolution digitizer. Delivery is 45 to 60 days ARO.

**Reader Service Number 50**

## T1 local multiplexer supports up to 128 terminals

For larger installations supporting substantial terminal clusters in a building, on a campus, or in a metropolitan area, Micom has developed the Instatrunk480 T1 local multiplexer. Fully configured, Instatrunk can support up to 128 full-duplex asynchronous terminals, each of which can run at speeds up to 9600 bps. The link carrying multiplexed data between Instatrunks conforms to Bell's T1 format, which was originally developed to carry 24 voice conversations over two twisted pairs at a speed of 1.544M bps. T1 links can use customer-owned wires, microwave transceivers, or T1 land lines provided by a common carrier. According to the company, typical transmission range over twisted pairs is 6000 feet, or longer if repeaters are used.

The basic Instatrunk480 can multiplex 32 terminal channels. Data rate, character code, parity, and number of start and stop bits are transparent to the Instatrunk as its multiplexing technique samples each incoming bit several times.

The basic 32-channel Instatrunk480 costs $3200. A $400 option, the extended remote bay feature, allows the stand-alone Instatrunk480 to communicate with a local network controlled by a Micro600 Data PABX equipped with a plug-in Instatrunk480i.

**Reader Service Number 51**

## Database tool offers security/ access/storage solutions

LAN: Datacore, a database development software tool offered by Software Connections, offers concurrent access, business-size storage capability, and multiuser security to personal computer users on a local area network. Datacore handles the problem of simultaneous access by providing automatic passive record locking and by allowing several people to modify the same database simultaneously.

The software package defines user-access by records or fields within records, allowing a single database to contain information for several applications without jeopardizing security or privacy requirements. Programmers can write a single applications program that can be used by a single user or upgraded to a local area network environment.

Keys are stored in a dynamic B+ tree structure, allowing Datacore to retrieve records in a fraction of a second. This system, according to Software Connections, minimizes disk traffic and maximizes network performance. Up to 16 key fields can be defined to allow fast retrieval in direct or keyed sequential order. These features eliminate the need for resorting and reindexing the database.

Software Connection's LAN: Datacore can handle up to 16M bytes of information and sells for $1950.

**Reader Service Number 52**


Communications Professionals

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## Cross-compilers designed for microprocessor software

Inter-C and Inter-Pas are two cross-compilers for 8086 and 68000 units that run on VAX and PDP-11 minicomputers. The C and Pascal products are designed for the embedded microprocessor systems builder. The cross-compilers are the first co-funded products of Intermetrics' Software Products Division and Gould's Design and Test Systems Division; the companies expect to add assemblers along with extensions of Inter-C and Inter-Pas to other microprocessor targets.

A full set of development tools is provided with both compiler systems. These include a librarian, a linker, a locator, and formatters that support popular data protocols for downloading software to emulation equipment or resident monitors. Inter-C and Inter-Pas produce object code through use of a supplied ROM processor.

The compilers, including support tools, are available for $3995, and with assembler for $4995.

**Reader Service Number 53**

## IBM/ANSI-compatible magnetic tapes offered

Innovative Data Technology's IBM/ANSI-compatible family of ½-in., nine-track magnetic tape systems use tension-arm tape buffering to achieve speeds up to 75 ips.

The series 1750 features a nine-track, PE (1600 cpi) and/or NRZI (800 cpi) read-after-write; embedded formatter; 75-ips start/stop and 250-ips rewind; 8000 hours MTBF; microprocessor control; diagnostics on-board; support for up to 10½-in. reels; and standard industry-compatible I/O.

The series 1750 consists of the TD-1751, an unformatted, master stand-alone tape transport; the TD-1752, an unformatted, slave daisy-chainable tape transport; the TD1753, a formatted, master daisy-chainable tape transport; and the TD-1754, a formatted, slave stand-alone tape transport.

Prices are from $5995 for the TD-1751 to $8450 for the TD-1753. OEM and quantity discounts are available.

**Reader Service Number 54**

## Lisp-based system executes 1M instructions per second

The 3600 Lisp-based computer system, an interactive workstation from Symbolics, Inc., is designed for applications requiring large-scale problem-solving capabilities, such as computer-aided design and artificial intelligence. Other applications are robotics, genetic engineering, training simulation, and research.

With a 36-bit tagged architecture and 32-bit data paths, the system executes programs at an average of one million high-level instructions per second. Its virtual memory consists of 1,048,576 pages of 256 words, 36 bits each. The basic system hardware features 2.3M bytes of MOS memory with ECC (512K 36-bit words), one parallel and three standard serial I/O ports, a 10M-bps Ethernet interface, a graphics console, and a 169M-byte SMD-compatible Winchester disk drive. Each memory board has single-bit error correction and double-bit error detection. Up to 15 memory boards can be installed in the standard chassis.

The primary language of the 3600 is Zetalisp. Fortran-77, C, Pascal, and Interlisp are also supported by the system. The 3600's operating system and software environment is written in Lisp.

The 3600 display system allows programs to create windows or rectangular regions that can be fully visible, partially visible, or wholly obscured by other windows. Manipulating windows like pieces of paper, the user can allocate display space dynamically to fit the application at hand and execute various programs at the same time.

The single unit price for the 3600 is approximately $85,000.

**Reader Service Number 56**

## Desktop computers can expand to multiuser system

Codex Corporation has added two models to the CDX-268 line of communicating desktop business computers for distributed office users. Models 25 and 45 can be used in a single-user configuration or expanded to a full multiuser, shared logic system. According to Codex, the communications capabilities built into the desktop computers permit users with one model to perform not only office applications like financial spreadsheets and word processing, but also 3270 interactive communication with a mainframe, 2780/3780 batch processing, and TTY emulation.

ISOS, the models' Unix-like operating system, allows users to perform different tasks concurrently. Terminals at remote locations can be connected to a shared database or mainframe and can recognize a dial-in connection made through a modem. Other features of the desktop computers include a menu processor and high-density storage capability (Model 25 has two 650K-byte diskette drives; Model 45 has one diskette and a 15M-byte Winchester drive). Multiuser software includes electronic spreadsheet, records management, and word processing capabilities; programming languages include Cobol and Basic.

Single units of Model 45 cost $8995. The Model 25 costs $5995. Additional workstations sell for $1900 apiece. Volume discounts and lease plans are available.

**Reader Service Number 55**

**The CDX-268 Model 45 desktop computer features desktop-to-mainframe communication, telecommuting, and distributed office applications. Based on the Motorola MC 6809E microprocessor, both models offer a multiuser environment with 15M-byte storage.**

## Protocol converter adds Tektronix graphics capability

A protocol converter, developed by Kaufman Research Manufacturing, allows users of IBM and Univac computer systems to add Tektronix-compatible Color Retro-Graphics terminal enhancements.

When interfaced to IBM and Univac systems, the protocol converter provides complete support of the asynchronous Datamedia ColorScan 10 and 10H series terminals upgraded with Retro-graphics PC board assemblies. Full compatibility is maintained via emulation of the IBM 327X and Univac UTS 40 series terminals.

The ASCII-compatible protocol converters are both polled concentrators and terminal emulators. The 870G, IBM protocol, and 871G, Univac protocol, connect up to eight Retro-Graphics terminals to one synchronous computer port. All lines can run simultaneously at speeds up to 19.2K baud. A keyboard-controlled side-door feature allows users of IBM or Univac systems to communicate with other host systems from the same terminal.

The Kaufman protocol converters are from $4500 to $11,000, depending on the model.

**Reader Service Number 57**

## Automation system captures banking interests

The Honeywell Series 7900 five-teller branch automation system uses Omninet in conjunction with a single microprocessor that controls multiple terminals and a variety of software programs. The system accommodates a monochrome or color monitor, a keyboard, letter-quality or draft printers, teller stations, and administrative workstations.

The multifunction terminal controller has 128K bytes of memory that can be expanded to 1M bytes, dual 320K-byte diskette drives, or one 320 diskette drive and one 10M-byte Winchester disk drive.

The MTC can be a single workstation processor or operate as a small cluster controller in a local network. A key feature is its eight personality expansion slots, which allow the user to support a variety of bank system peripherals, communication facilities, and software products.

The Omninet local area network interconnects multifunction terminal controllers with the shared disk server, which attaches up to four 20M-byte Winchester disk drives. The network operates at speeds up to 1M bps and can interconnect up to 64 processors over a twisted pair cable up to 4000 feet in length. The local area network also provides shared access to IBM host communication facilities via the Advanced Communications Subcontroller.

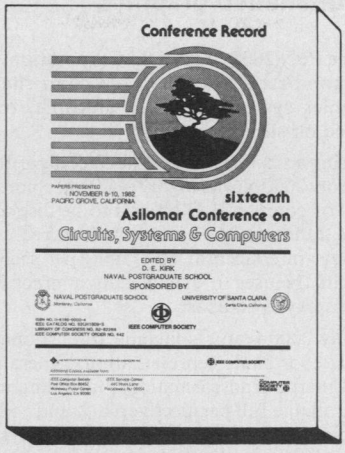
Software tools can assist customer service representatives in providing customer service, selling new business, managing accounts, and processing loans.

Management decision support commodity software, and other software applications currently available under MS-DOS, such as word processing, spreadsheet capability, and graphics can also be supported by the 7900. Programs written for CP/M-86 can be executed under the MP/M-86 operating system. The user can also develop tailored applications using a variety of commercially available languages.

The Benchmark office automation package offers users four menu-driven, single-keystroke, English-command software products. The Benchmark word processor creates, revises, views, and prints text. It also merges mail lists from the keyboard; provides disk-to-disk copy, imports or exports files; and assigns storage on hard disk. The Benchmark mail list supports the creation and maintenance of lists of names and addresses. Selected addresses can be merged with documents created by the word processor. The Benchmark spelling checker comes with a 27,000-word dictionary, which can be user-customized by adding and deleting words. The Benchmark telecom transmits files and/or documents created with any of the Benchmark packages.

Honeywell's series 7900 five-teller branch automation system costs $18,000 to $25,000, depending on the specific configuration selected. The system will be available for volume shipments in first quarter 1984.

**Reader Service Number 58**


The conference was devoted to the presentation of new ideas and preliminary research results in circuits, systems, and computers, with emphasis on interfaces with signal processing. Special sessions included VLSI design methods and CAD software tools, Ada experience, and software engineering. 550 pp.

**Order #442**

**CONFERENCE RECORD**
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**November 8-10, 1982**

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**Use order form on p. 144A.**

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## LP/Protran solves linear programming problems

IMSL has added a linear programming package to its Protran family.

LP/Protran allows continuous variable linear programming problems to be represented in either symbolic format or in matrix/vector format. According to IMSL, it provides a particularly efficient representation for large, sparse problems in which most elements of the constraint matrix are zero.

As with Math/Protran and Stat/Protran, the LP/Protran user needs only a minimal knowledge of programming or computers, IMSL states. The advanced programmer can mix Protran statements with Fortran statements for a tailored approach to problem solving.

A $6000 annual subscription includes an LP/ Protran magnetic tape, user's manual, maintenance, updates, and consultation; renewals are $2000 per year. University subscriptions placed before January 1, 1984, will be priced at an introductory offer of $500.

LP/Protran is available for most Control Data, Data General MV, Digital Equipment VAX, and IBM computers.

**Reader Service Number 59**

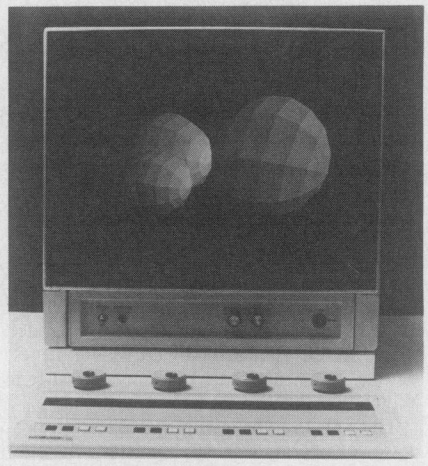
## System displays 3-D, real-time color-shaded graphics

The Poly 2000, from GTI Corporation, is a polygon-based real-time, 3-D color-shaded graphics system that uses multiple, overlapped bit-slice processors.

Using a scan-line hidden-surface algorithm, the Poly 2000 allows highly realistic, color pictures of complex 3-D objects to be displayed on a standard RGB monitor. The real-time display, interlaced at 30 frames per second, permits the user to dynamically interact with the displayed database.

Poly 2000 features include 16-bit homogeneous coordinate representation; generalized $4 \times 4$ matrix transformations, including user-controllable full perspective; $x$, $y$, and $z$ plane clipping; and display of up to 2000 polygons with as many as 4000 edge intersects per scan line. The $640 \times 480$ pixel display has a palette of over 16 million colors and automatic high-resolution intensity shading of individual colored polygon faces based on movable light sources. The accompanying software supports the system's hierarchical data structure and its interface to the user's host computer.

A console-based Poly 2000 system complete with a color monitor is priced at $125,000.



**GTI's Poly 2000 can manage and display dynamic data structures of the scenes and respond interactively in real time to a console operator's actions.**

Quantity discounts are available, and delivery is 90 days ARO.

**Reader Service Number 60**

Contributions from around the world (with a significant number from the US) explored topics such as numerical error control, language aspects, and methods from the field of symbolic and algebraic computations. 221 pp.

**Order #476**

**PROCEEDINGS—Sixth Symposium on Computer Arithmetic**

**June 20-22, 1983**

**Members—$15.00**
**Nonmembers—$30.00**

**Use order form on p. 144A.**

## Software facilitates menu development

Borland International has introduced Menu Master software for the CP/M user and retail distribution markets. The package displays straightforward instructions in the users' own language, allowing him to control jobs with basic keystrokes.

The software has one general-purpose set of menus that enables users to perform any typical operating system function. The package also includes a file menu, a word processing menu, and a development menu that permits the user or dealer to create customized menus.

Menu Master incorporates a programming language called the menu definition language, which is syntactically similar to Pascal or Basic and which allows the moderately experienced user or programmer to develop menus. Other features of the language include string and integer variables, procedures with parameters, I/O to files and the console, a complete mechanism for Help messages, screen-oriented menus via cursor addressing, password protection of any command or program, and complete file and port I/O.

Menu Master, including user's guide and reference manual, is available in any disk size and format and is priced at $195.

**Reader Service Number 61**

## Real-time tool analyzes workload problems

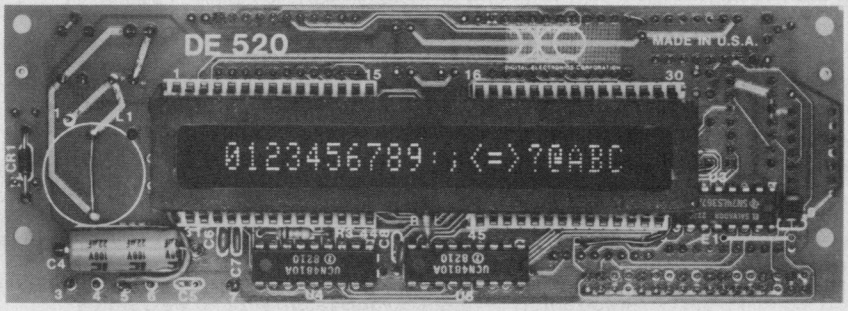
IMF/Workload Analyzer, a real-time tool for the analysis of workload degradation in IBM's information management system, has been introduced by Boole & Babbage. The Workload Analyzer provides immediate real-time information to pinpoint the precise cause of poor response time.

The real-time tool is part of the company's integrated IMS performance management architecture—IMS management facilities. IMF works in real time and off-line to analyze, monitor, evaluate, and manage current system activity, as well as to provide long-term performance and cost analysis.

The Workload Analyzer tracks individual transactions as they pass through the major events within an IMS. It views 283 states in which a transaction can exist, representing 283 ways that a unit of work can be stalled. The Workload Analyzer's wait display section identifies critical resource bottlenecks, including physical resources such as disk drives and logical resources such as IMS message format service buffer pools. The detail transaction trace capability of the Workload Analyzer shows workload events in an on-line display.

A perpetual license for the IMF/Workload Analyzer is priced at $20,000.

**Reader Service Number 62**




**Digital Electronics' miniature DE/520A module displays characters 5mm high × 2.3mm wide and measures 6.2 × 2.6 × 1.15 in. The module is expected to draw less than 0.3A of power, even at maximum usage.**

## Miniature module displays 20 characters

Digital Electronics Corporation has announced a miniature display module, the DE/520A. Part of the company's new Starbrite Visi-link series, the DE/520A has full alpha capability in a 20-character line that is 2.86 inches long. According to the company, the 5 × 7-dot matrix characters are bright and easy to read because of the vacuum fluorescent technology used.

The module display features an independent refresh scheme designed to eliminate flickering and an externally adjustable bright ness control that is mounted on the PC board. The display's brightness of more than 175 foot-lamberts permits filtering to several colors other than the natural blue-green. High shock and vibration resistance allow the display to be used in mobile and portable applications.

The DE/520A accepts ASCII signals for the full 96-character set, including upper- and lowercase letters. All character positions are individually addressable. An on-board microprocessor handles decoding, character generation, display buffering, cursor control, refresh and self-test capabilities, auto flashing of any or all characters, and a blinking visible or invisible cursor. All drive electronics are included along with necessary power conversion circuitry. Both 1200-baud serial and bidirectional parallel interfaces are standard items; RS-232 voltage levels are optional features.

In quantities of 100, the DE/520A costs $150. Availability is 30 days ARO.

**Reader Service Number 63**

## Payroll system runs on IBM 5280 computers

Marion Computing System's payroll accounting system is designed to run on the IBM 5280 series computer and to provide the necessary capabilities to handle multicompany processing, entry validation, employee record maintenance, custom paycheck production, check reconciliation and annuity processing.

Pay periods can be run at the interval the user selects, with complete current and year-to-date information printed on each check stub. Up to 13 pay types and 15 deduction categories are available to accurately classify payroll data.

A number of user reports are available with the system, including the payroll journal; check register; deduction registers; federal, state, local tax reporting; and employee history listings. Employee label printing capability is also included.

The payroll system (source and object) sells for $1500. Complete documentation and maintenance are available from the vendor.

**Reader Service Number 64**

## Keyboard construction ends keyswitch "teasing"

A 58-key, off-the-shelf DIN profile keyboard from Advanced Input Devices is designed to offer maximum operator comfort for a wide variety of medium-volume data entry applications.

The MK158 keyboard features conventional keytop sizes with standard ¾-inch key centers and a profile height of 0.50 inches. Contact resistance is a maximum 200 ohms with a maximum 10 ms of contact bounce. The board's keyswitch construction helps eliminate keyswitch "teasing" problems.

The MK158's all-metal, dome keyswitches are environmentally sealed to extend keyboard life. The keyboard is also designed to be easily retrofitted to a variety of off-the-shelf enclosures. Optional equipment includes daughter board assemblies with standard ASCII encoding and RS-232, RS-422, or parallel serial interface connectors.

Off-the-shelf prices of the MK158 keyboard are from $46.75.

**Reader Service Number 65**

# New Literature

**Pascal business programs.** Written in UCSD-compatible Pascal, the 28-program collection contains Honeycalc, Type-Right, and statistical analysis packages. *Pascal Programs for Business,* Hayden Book Company, 50 Essex St., Rochelle Park, NJ 07662; (201) 843-0550; $15.95; 212 pp.

**Graphics software.** Free 76-page booklet describes programs written by independent software firms for Ramtek's 6000 Series of color graphics terminals and 9000 Series graphics and imaging systems. Software Support Group, Ramtek Corp., 2211 Lawson Lane, Santa Clara, CA 95050; (408) 988-2211.

**Linear circuits.** Reliability tests on all PMI product families are described in a 74-page brochure from Precision Monolithics, Inc., Literature Dept., 1500 Space Park Dr., Santa Clara, CA 95050; (408) 727-9222.

**Logic analysis.** The fundamentals of logic analysis are given along with the Dolch Logic Instruments' design approaches and applications. "The Modern Logic Analyzer: A Basic Primer," Terry Larson, Dolch Logic Instruments, 3052 Orchard Dr., San Jose, CA 95134; (408) 945-1881; no cost; 12 pp.

**IBM PC bible.** Topics range from fundamental system configurations to starting application programs. Basic language programming is also covered in this "how to" manual. *Using Your IBM Personal Computer,* Howard W. Sams, Inc., 4300 W. 62nd St., PO Box 7092, Indianapolis, IN 46206; $16.95; 326 pp.

**Local network market.** A comparison is given of real-world local networks and marketing claims, based on 32 articles from *Data Communications, The Local Network Handbook,* George Davis, ed., McGraw-Hill Book Co., 1221 Ave. of the Americas, New York, NY 10020; (212) 997-3493; $26.95; 256 pp.

**Accounting and financial software.** A directory of 317 general packages from 86 vendors, the survey covers mainframes, minis, CP/M, MP/M, and Unix-based micros. Available as Report 8-CJ from Data Decisions, 20 Brace Rd., Cherry Hill, NJ 08034; (800) 257-7732; $49.

**Using Visicalc.** Starting with how to set up a spreadsheet with labels, values, and formulas, the audio cassette tutorial progresses to advanced concepts such as replicate, choose, lookup, and net present value. *How to Use VisiCalc,* Fliptrack Learning Systems, 526 N. Main St., Box 711, Glen Ellyn, IL 60137; (312) 790-1117; lesson summary and four cassettes.